



*Armitage
Shanks*

Installation Instructions

PICCOLO 21 THERMOSTATIC BATH SHOWER MIXER



A4989AA Bath/Shower Thermostatic Mixer
Rim-Mounted with Accissoires

IMPORTANT
BEFORE CONNECTION, FLUSH WATER
THROUGH PIPEWORK TO REMOVE
ALL DEBRIS ETC. WHICH COULD
DAMAGE THE VALVE MECHANISM

INSTALLER

After installation please pass
this instruction sheet to user

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1 Introduction

The fittings covered by these instructions should be installed in accordance with the Water Regulations published in 1999*.

Ideal Standard strongly recommends that these fittings are installed by a professional fitter.

*A guide to the Water Supply (Water Fittings) Regulations 1999 and the Water Byelaws 2000, Scotland is published by WRAS (Water Regulations Advisory Scheme) Fern Close, Pen-y-Fan Industrial Estate, Oakdale, Newport, NP11 3EH. ISBN 0-9539708-0-9

The A4989AA is designed to be installed on normal UK low pressure storage tank fed systems, unvented high pressure systems, modulating instantaneous water heaters or modulating combination (combi) boilers. They are suitable for all pumped applications.

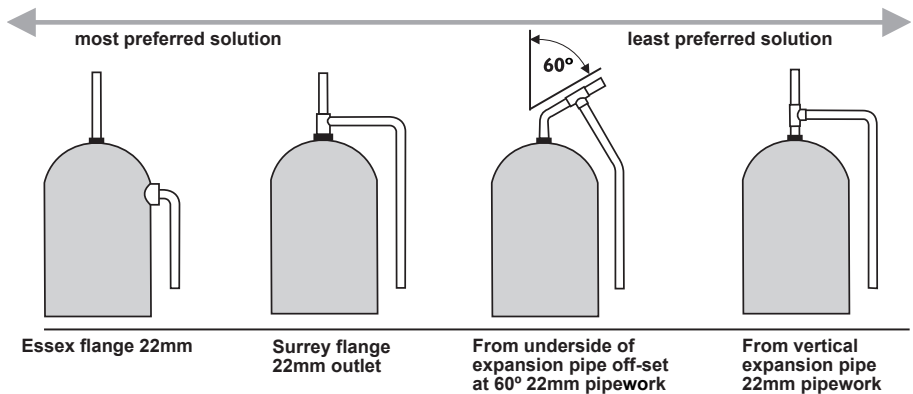
WATER REGULATIONS

Hot and cold water supply pressures must be reasonably balanced and from a common source - both from storage or both from a supply pipe. (IRN 101). The mixers will function within specification on unequal pressures up to a ratio of 5 : 1, but it is not recommended that the cold supply be connected to the rising main and hot to the tank fed supply as the pressure differential is likely to exceed the 5:1 ratio. (See table 1) The minimum pressure for correct operation is 0.1 bar (1m head). Pressure head is measured as the vertical distance between the bottom of the cold water storage tank which feeds the hot water system and the highest point on the shower spray plate. When installing with a shower pump the use of a secondary tapping from the cylinder is highly recommended.

The picture below shows the various methods of connecting the hot water pipe to the cylinder - the most preferred on the left and the least preferred on the right.

The fitting should be so installed as to be readily accessible for examination, repair, replacement or operation. (IRN 111).

The temperature of the hot water must not exceed 85°C but the installer's attention is drawn to code of practice BS 6700 which recommends that stored hot water should normally never exceed 65°C. For correct operation of the valve, a minimum of 55°C is required.



Preferred arrangements for cylinder tapping

In accordance to BSEN1111 & BSEN1287 the valve has approval for the following applications:

High Pressure HP-T

Note: If water supply is fed by gravity then supply pressures should be verified to ensure the conditions of use are appropriate for the valve.

2 Supply Conditions

Table 1 Conditions of use for Type 2 valves

	BSEN1111	BSEN1287
Operating pressure range:	High Pressure	Low Pressure
Maximum static pressure	10 bar	10 bar
Flow pressure hot and cold	0.5 to 5.0 bar	0.1 to 1.0 bar
Hot supply temperature	55 to 65 °C	55 to 65 °C
Cold supply temperature	up to 25 °C max	up to 25 °C max
Temperature differential characteristic (TDC)	10 °C	10°C

Valves operating outside of these conditions cannot guaranteed to perform as type 2. Approval only applies when the valves are installed without the flow regulators.

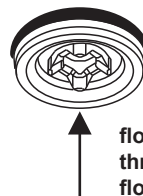
MODULATING COMBI BOILER

The A4989AA is designed for use with modulating combination boilers.

When installing on a modulating combination boiler it is sometimes possible for the interaction of a thermostatic valve with the combi to cause the boiler to cut out and cut in again, with the result that the water will become alternatively cold and hot. To overcome this, a 4 L/min flow regulator should be fitted upstream of the thermostatic valve.

It should be fitted in any 15mm compression fitting in the dedicated cold supply pipe.

It is important to choose a compression fitting located in a position which is accessible after installation and it must be fitted the correct way round for the direction of flow. The regulator can be fitted in either the inlet or outlet side of the compression fitting. If fitting in an outlet side, ensure the o-ring is seated fully in the visible rebate around the edge of the regulator. Use the tip of a small screwdriver or similar to achieve this. Ensure the tail of the pipe is not fouling the regulator (shorten if required) and do up the compression fitting as normal. In a minority of cases, where the boiler is of a type which stores a small quantity of very hot water, it may also be necessary to fit a 4 l/min flow regulator in the hot supply. These flow regulators can be obtained from Customer Care (A962570NU).



**flow direction
through
flow regulator**

Isolation valves MUST be fitted to permit future maintenance. Fitting of strainers is also recommended.

These should be fitted as close as is practicable to the water supply inlets of the thermostatic shower valve. See sect.15 for more details.

Both isolation valves & strainers should be installed in an easily accessible location.

3 Water Regulations

CATEGORIES OF RISK

The water regulations published in 1999* take a new approach to backflow in that they look at different categories of risk. The installer must assess the risk from the various categories of fluid in adjacent appliances before determining the level of backflow protection required for a particular installation. **Figures 3 & 4** describe the protection required in various installations.

CATEGORY 3 RISK

Water in a shower tray, basin or bathtub is considered to be a fluid category 3 risk which is a fluid which represents a slight health hazard if it were to find it's way back into the supply pipe. For this reason it must not be possible for any flexible shower head to be able to enter any adjacent washbasin, bath or shower tray unless appropriate protection is employed. (See Figure 3). If it is desired to allow the hand spray to be used inside say a bathtub or a basin it is essential that double check valves be fitted to the inlet on both hot and cold supplies to the thermostatic valve. Alternatively single check valves can be fitted at the inlets and an additional check valve should be fitted in the valve outlet.

No check valves need be fitted if the hand spray is prevented from reaching closer than 25mm of the spill over level of any such fixture.

CATEGORY 5 RISK

Water in a Sink, WC or Bidet is considered to be a fluid category 5 risk which is a fluid which represents a serious health hazard if it were to find it's way back into the supply pipe. For this reason it must not be possible for any flexible shower head to be able to enter any such vessel, the requirements to the system design are so onerous it is better not to fit a flexible. Rather, a fixed overhead showerhead should be considered. (See Figure 4).

It will also be seen that this risk could change should the hose be taken out of the restraining device or should a longer replacement hose be fitted at a later date. Installers and householders are advised to take account of these factors when fitting replacement hoses.

For pumped applications the pipe supplying the pump must not in addition supply an ascending spray bidet.

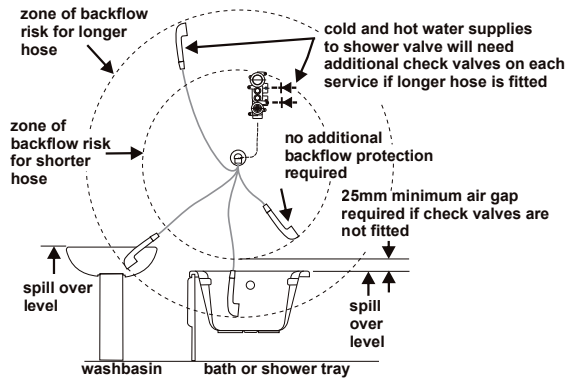


Fig. 3 Backflow risk from a fluid category 3

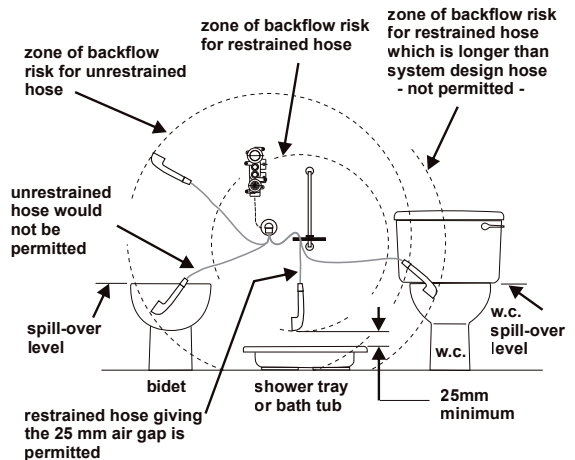


Fig. 4 Backflow risk from a fluid category 5

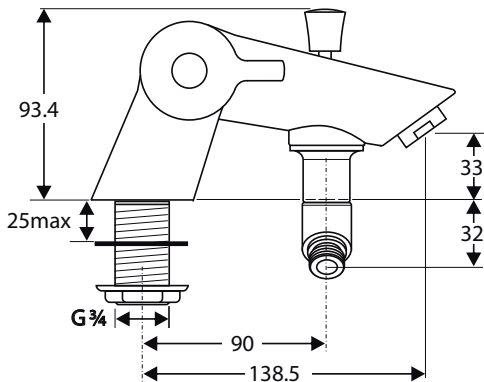
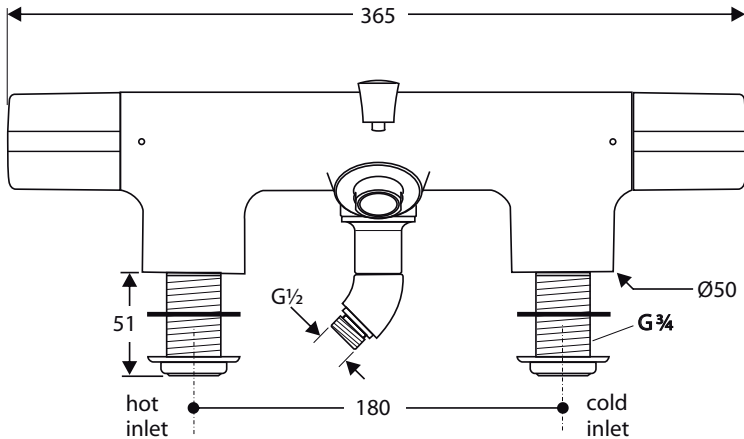
4 Installation Guide

**IMPORTANT
BEFORE CONNECTION, FLUSH WATER
THROUGH PIPEWORK TO REMOVE
ALL DEBRIS ETC. WHICH COULD
DAMAGE THE VALVE MECHANISM**

The thermostatic mixing valve must be installed in such a position that maintenance of the TMV and its valves the commissioning and testing of the TMV can be undertaken.

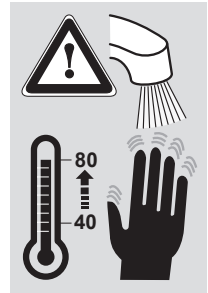
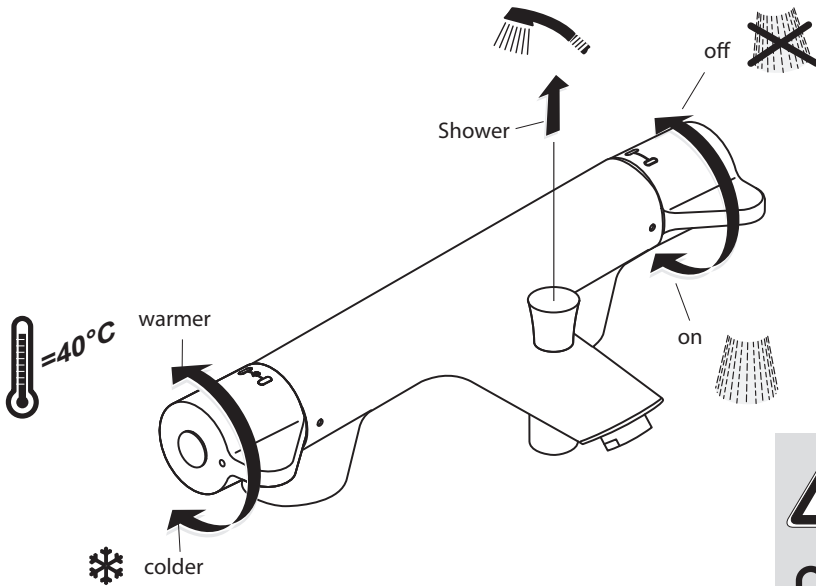
The A4989AA Piccolo 21 Thermostatic Bath Shower Mixer are intended to be deck mounted on a bath tub where the tap hole centres are located at 180mm centres.

It comes complete with integral check valves located inside the G3/4" inlet tails.



For guidance on how to install the shower kit, please refer to the separate instructions provided with the kit.

5 Operation



ATTENTION:
TEMPERATURES HIGHER THAN 40°C CAN BE
HARMFUL TO YOUR HEALTH.

Right handle controls water flow rate.

- This handle is shown above in the off position.
- Rotating this handle downwards commences water flow.

Left handle controls water temperature.

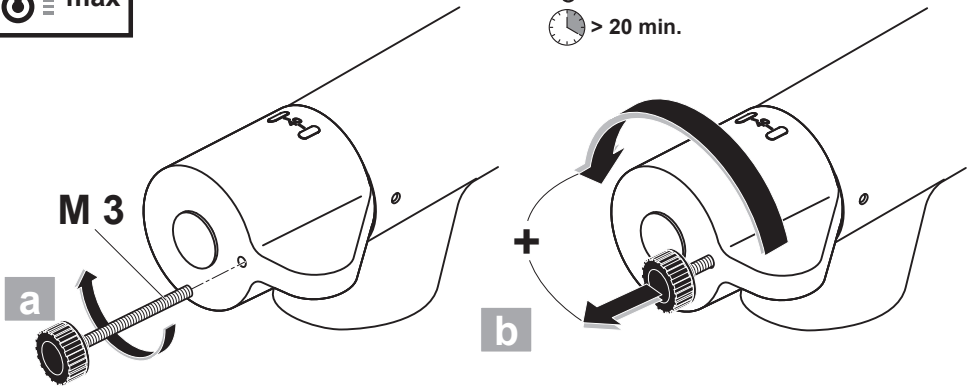
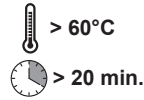
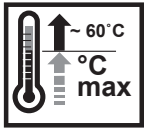
- This handle is shown above between the maximum set temperature and the minimum cold temperature.
- To obtain cooler water rotate handle downwards.
- To obtain higher water temperature rotate this handle upwards.

Pull up Knob for flow diversion to shower.

- The pull up knob is located over the shower out let.
- Pulling the knob up will divert flow to the shower.
- Pushing the knob down will divert the shower back to bath.
- Turning off the right handle will automatically divert from shower to bath

**DO NOT FORCE HANDLES BEYOND THE DESCRIBED MOVEMENT RANGES
OTHERWISE THIS MAY RESULT IN DAMAGE TO BOTH VALVES AND HANDLES.**

6 Sterilisation Feature



By means of a by pass feature it is possible to elevate the temperature to the hot supply temperature for the purpose of sterilising the internal surfaces of the fitting.

Procedure:

- Use the M3 screw provided with the fitting. Insert into handle as shown above in figure "a"
- Once the screw is fully inserted it will be possible to rotate the handle to achieve greater temperature 60C +
- It is recommended to run the water in this position for circa 20 mins or more.

7 Maximum Temperature Stop

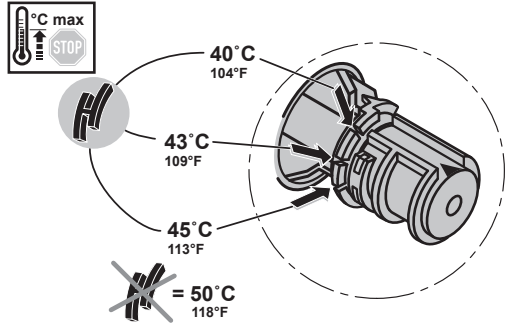
The maximum mixed water temperature is factory set at 40°C.

To change this temperature, remove the temperature control handle. (See section 12 for details) Remove the temperature limit stop (black H-shaped plastic part) and reinsert it in the appropriate recess on the handle carrier.

Four different settings are possible:

40°C, 43°C, 45°C & 50°C

Finally refit the temperature handle again.

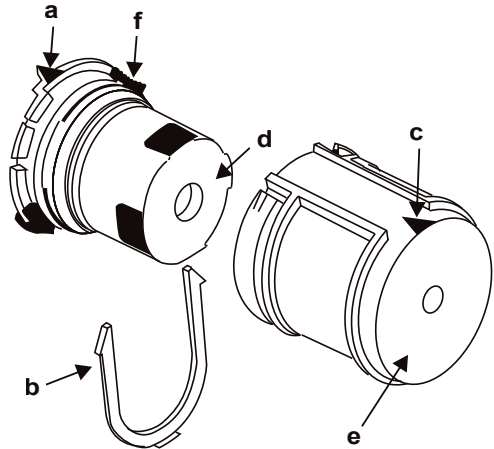


Details of the recommended code of practice for safe water temperatures can be found on the Thermostatic Mixing Valve manufacturers Association web site: www.tmva.org.uk

8 Calibration

In the event of the thermostatic cartridge requiring re-calibration the following procedure should be undertaken.

1. Remove the temperature control handle.
(See section 12 for details)
2. Slide out the red "U" piece (b) exposing temperature control mechanism (d).
3. Turn on the shower, position a thermometer in the running water and when the temperature settles, rotate the temperature control mechanism (d) until 40°C is achieved.
4. Reconnect the handle carrier (e) ensuring the arrow guide (c) is in line with (a) and refit the red "U" piece (b).
5. Reconnect the Handle.



9 Maintenance

The fitting of isolation valves and strainers is required as close as is practicable to the water supply inlets of the thermostatic valve. The thermostatic cartridge seldom fails and the possibility of blocked filters should be investigated before contemplating replacing it. Small particles of debris may still find their way past the strainers and onto the filter screens on the thermostatic cartridge. These should be cleaned and re-fitted. See section 9 on cartridge replacement.

10 Commissioning & Periodic Checks

The following procedures should be carried out after installation and every 12 months after to ensure that the valve is functioning correctly.

Check that:

1. The application of the thermostatic valve matches the approved designation.
2. The supply pressures are within the recommended range for the application.
3. The supply temperatures are within the permitted range for the application and comply with the guidance for prevention of Legionella.
4. The mixed temperature is as required for the application.

Record:

5. Each hot and cold supply. (Make a note of the measuring device used).
6. The mixed water temperature at the outlet device.

Isolate:

7. The cold supply to the mixing valve and record the mixed water temperature after about 5 seconds. The temperature should not exceed the value given in table (2) below.

Table 2 A guide to maximum temperature sets

Application	Mixed Water Temperature	Permitted maximum temperature rise during site testing
Shower	41°C	43°C
Bath	44°C	46°C

IMPORTANT
The mixed water temperature must not exceed 46°C

Note: 46°C is the maximum mixed water temperature from a bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent thermostatic mixing valves and temperature loss in metal baths. **It is not a safe bathing temperature for adults and children.**

The British Burns Association recommends 37°C-37.5°C as a comfortable bathing temperature for Children.

In premises covered by the Care Standards Act 2000, the maximum mixed water temperature is 43°C

11 Frequency of Regular Servicing

The purpose of servicing regularly is to monitor the performance of changes in system and valve set up. This may require the need to adjust either the supply system or the valve. The product should be checked and tested 12 months after commissioning.

Firstly measure the water temperature at the shower outlet.

Carry out the cold water supply isolation test by isolating the cold water supply to the TMV, wait for 5 seconds if water is still flowing check that the temperature is below 46C. If there is no significant change to the set outlet temperature (+/-2°C or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

Notes:

A residual flow is permitted during the commissioning or the annual verification (cold water supply isolation test), then this is acceptable providing the water temperature is no more than 2°C above the designated outlet temperature.

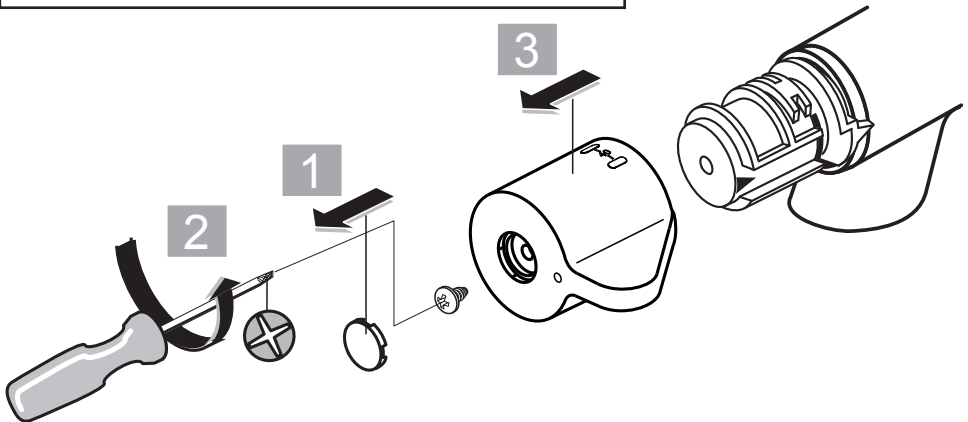
Temperature readings should be taken at the normal flow rate after allowing for the system to stabilize.

The sensing part of the thermometer probe must be fully submerged in the water that is to be tested.

Any TMV that has been adjusted or serviced must be re-commissioned and retested in accordance with the instructions detailed above.

12 Thermostatic Cartridge Replacement

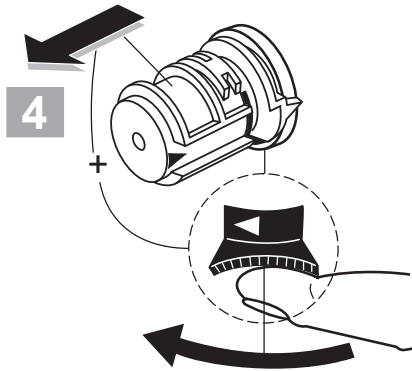
This thermostatic cartridge is protected from water borne debris by mesh filter screens. These should be checked and cleaned before contemplating replacing the cartridge.



To replace the thermostatic cartridge:
(REMEMBER TO TURN OFF WATER SUPPLIES)

1. Prise out the index button.
2. Remove handle screw.
3. Pull off the temperature control handle.

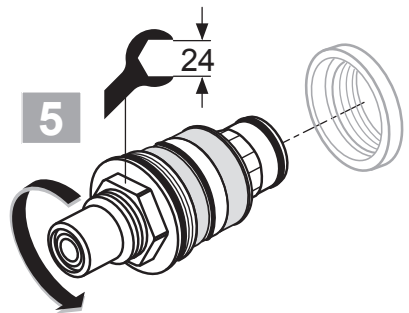
12 Thermostatic Cartridge Replacement Cont'



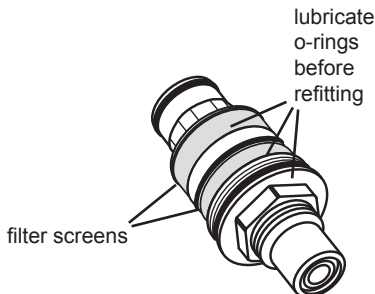
4. To remove the temperature handle carrier (grey plastic moulding), slide the black serrated lever clockwise and pull off. This will expose the thermostatic cartridge.

5. Unscrew cartridge with 24mm A/F spanner and replace if necessary.

**ENSURE PARTS ARE REASSEMBLED
IN THE CORRECT SEQUENCE.**



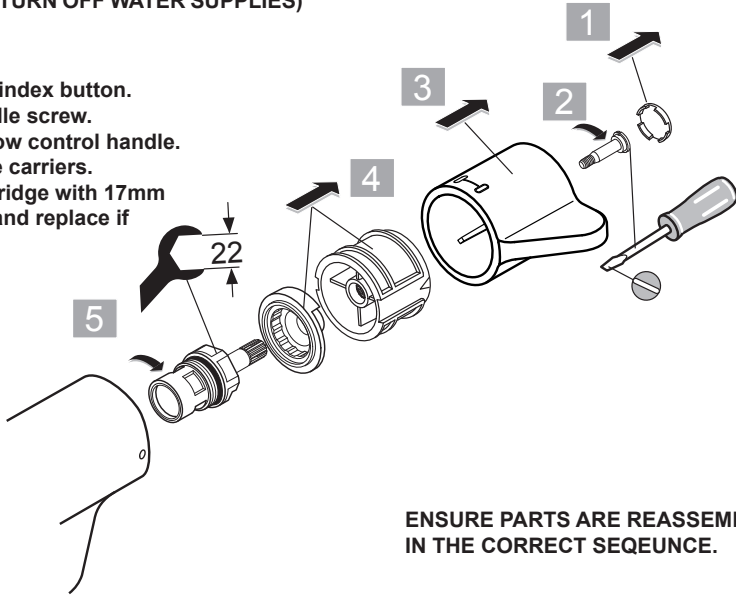
To clean the filter remove the o-rings shown
The screens will then slide off. When clean replace the screens then
the o-rings which should be lightly greased with a WRAS approved
silicone grease (e.g. Klueber Unisilikon GBU2).



13 Flow Cartridge Replacement

To replace the thermostatic cartridge:
(REMEMBER TO TURN OFF WATER SUPPLIES)

1. Prise out the index button.
2. Remove handle screw.
3. Pull off the flow control handle.
4. Pull of handle carriers.
5. Unscrew cartridge with 17mm A/F spanner and replace if necessary.

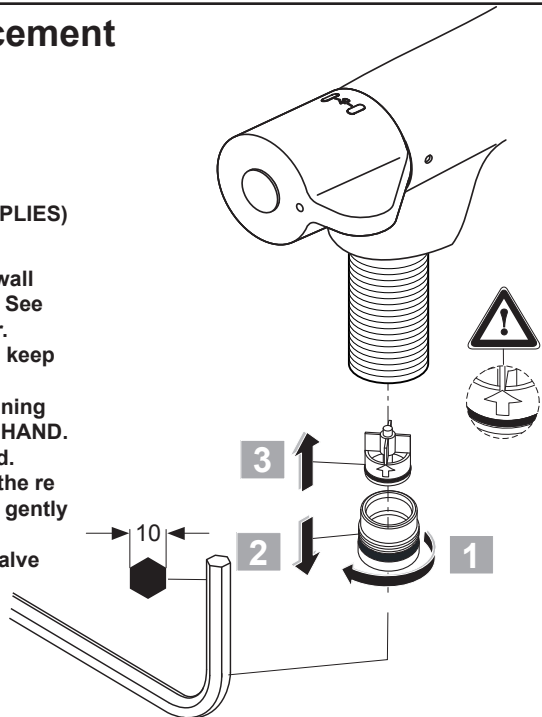


ENSURE PARTS ARE REASSEMBLED
IN THE CORRECT SEQUENCE.

14 Check Valve Replacement

To replace the thermostatic cartridge:
(REMEMBER TO TURN OFF WATER SUPPLIES)

1. Separate the shower valve from the wall bracket by undoing the captive nuts. See sect.4 step 9. Use 30mm A/F spanner.
2. Remove shower valve from wall, and keep sealing washers safe.
3. Using 10mm Allen key undo the retaining inserts. NOTE: THREADS ARE LEFT HAND. The captive nuts will also be released.
4. The check valves are housed inside the retaining inserts and can be pulled out gently and replaced if necessary. Note flow directional arrow marked on check valve body.



ENSURE PARTS ARE REASSEMBLED
IN THE CORRECT SEQUENCE.

15 Cleaning

When cleaning the A4989AA always use soap based cleaners. never use abrasive or scouring powders and never use cleaners containing alcohol, ammonia, nitric acid, phosphoric acid, organic solvents or disinfectants.

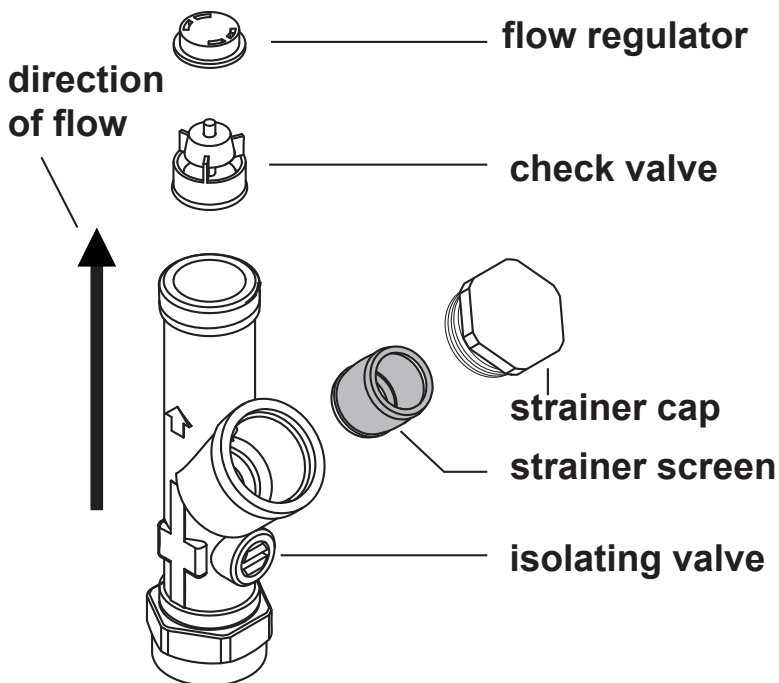
16 Isolation Valves

Isolation valves (not supplied with this product) **MUST** be fitted to permit future maintenance. Fitting of strainers (filters) is also recommended.

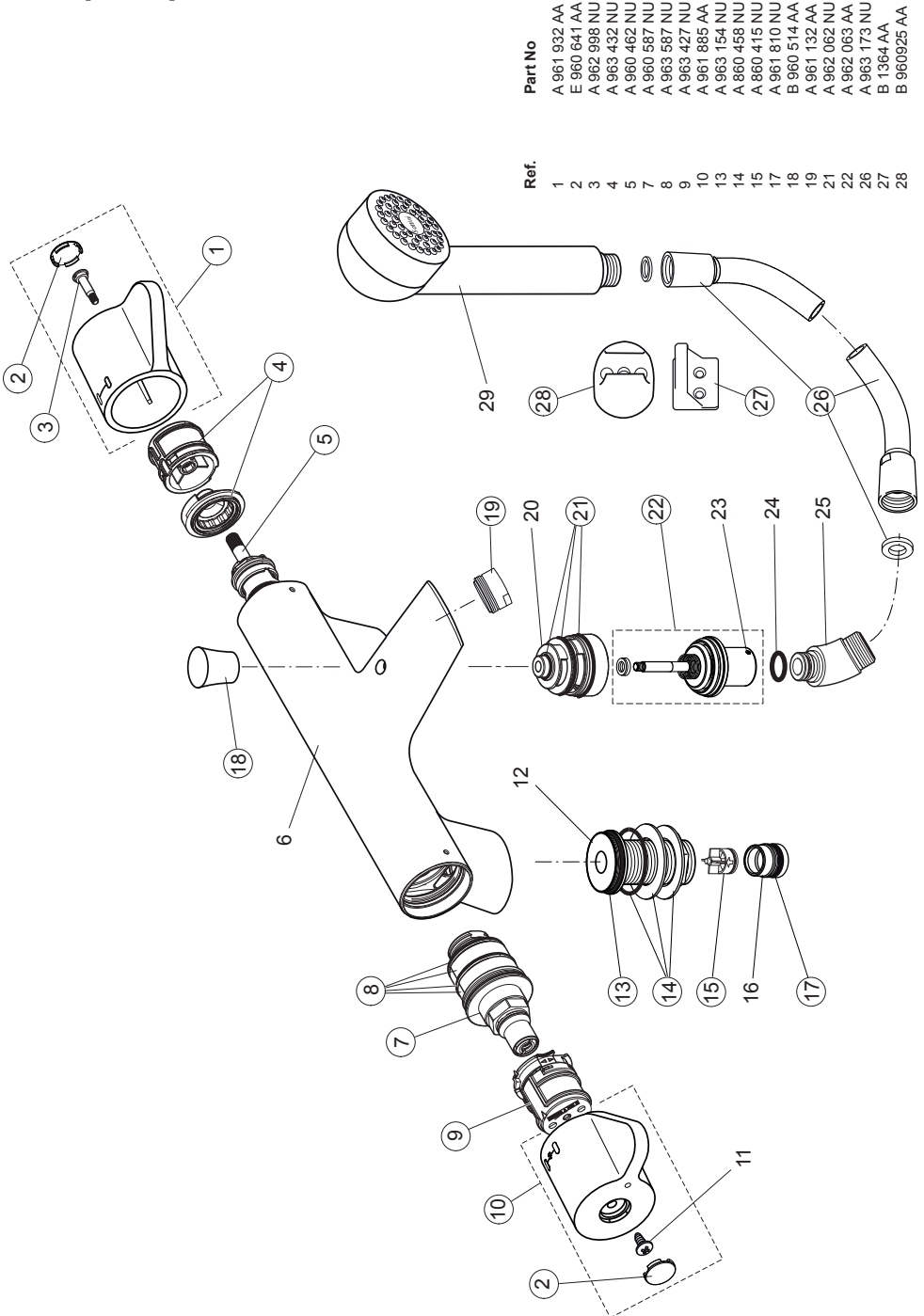
These should be fitted as close as is practicable to the water supply inlets of the thermostatic shower valve.

Both isolation valves & strainers should be installed in an easily accessible location.

An in-line combined isolating valve (shown below) can be purchased by contacting Customer Care. Spares code E960613NU contains a pair of these valves. This valve also contains a flow regulator and check valve (which can be removed if not required).



17 Spare parts



Part No	Ref.
A 961 932 AA	1
E 960 641 AA	2
A 962 998 NU	3
A 963 432 NU	4
A 960 462 NU	5
A 960 587 NU	7
A 963 587 NU	8
A 963 427 NU	9
A 961 885 AA	10
A 963 154 NU	13
A 860 458 NU	14
A 860 415 NU	15
A 961 810 NU	17
B 960 514 AA	18
A 961 132 AA	19
A 962 062 NU	21
A 962 063 AA	22
A 963 173 NU	26
B 1364 AA	27
B 960925 AA	28



CUSTOMER CARE HELP LINE
0870 129 6085

CUSTOMER CARE FAX
01482 499611

E-MAIL
UKcustcare@idealstandard.com

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This right is therefore reserved to vary specification without notice.

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